

# **EXHIBIT E**

FP32 multiply.

BF20 outputs.

Progress (of 64) 0----- 1----- 2----- 3----- 4----- 5----- 6---

Done.

Total number of inputs checked= 4294967296( 100000000)

Valid inputs don't produce NaN, Overflow (Inf), or Underflow (i.e. 0 when exact is not 0).

Number of Valid Inputs to Multiply 3275835469( c341484d)

error range [ 20.00%, 50.00%), valid inputs in range 0.25% (8032994), in or above range= 0.25%

error range [ 10.00%, 20.00%), valid inputs in range 0.22% (7147980), in or above range= 0.46%

error range [ 5.00%, 10.00%), valid inputs in range 0.23% (7513664), in or above range= 0.69%

error range [ 2.00%, 5.00%), valid inputs in range 0.31% (10245903), in or above range= 1.01%

error range [ 1.00%, 2.00%), valid inputs in range 0.24% (7905623), in or above range= 1.25%

error range [ 0.50%, 1.00%), valid inputs in range 0.24% (8001448), in or above range= 1.49%

error range [ 0.20%, 0.50%), valid inputs in range 0.33% (10707193), in or above range= 1.82%

error range [ 0.10%, 0.20%), valid inputs in range 0.25% (8174169), in or above range= 2.07%

error range [ 0.05%, 0.10%), valid inputs in range 0.25% (8247124), in or above range= 2.32%

error range [ 0.02%, 0.05%), valid inputs in range 40.00% (1310208159), in or above range=42.32%

error range [ 0.01%, 0.02%), valid inputs in range 28.84% (944695364), in or above range=71.15%

error range [ 0.00%, 0.01%), valid inputs in range 28.85% (944955848), in or above range=100.00%

Of all possible inputs (more than valid inputs)

NaN 0.78% (33488896 counts)

Inf 12.52% (537824654 counts)

Und 10.43% (447818277 counts)

Summary for spreadsheet. Inputs fp32. Output bf20.

1.25%

1.49%

1.82%

2.07%

2.32%

0.78%

12.52%

10.43%

ignore: nan